

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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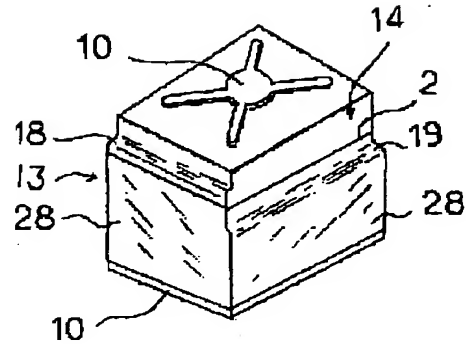
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APPLICATION NUMBER : 08076823

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TITLE : LIGHT EMITTING DIODE ELEMENT  
AND MANUFACTURING METHOD  
THEREOF



ABSTRACT : PROBLEM TO BE SOLVED: To increase the quantity of light emission by forming steps on the side faces of a GaP light emitting diode element having an approximately parallel emitting junction to the surface or bottom face and forming natural fracture planes on the side faces as high as more than  $2/3$  of the height thereof.

SOLUTION: Steps different in height are formed on adjacent side faces e.g. 13, 14 of a GaP light emitting diode element. The upper sides of such steps 18, 19 are cut to form fracture planes and natural fracture planes 28 are formed on the lower sides of them as high as more than  $2/3$  of the height thereof. Such steps 18, 19 are formed and natural fracture planes 28 are exposed to result in that the side face crystals of the element are deformed by the cutting to increase the light absorption due to the crystal damage, thus light emitting efficiency is more improved than that of an element having a perfect cleavage face or light emitting diode element having a cut fracture plane. Thus, the quantity of light emission is more than that of a light emitting diode element obtained by the dividing method such as dicing method or cleavage scribe.

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